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ABSTRACT

This document presents the following technology standards adopted by the Arizona Board of Education: (1) students understand the operations and functions of technology systems and are proficient in the use of technology; (2) students understand the social, ethical, and human issues related to using technology in their daily lives and demonstrate responsible use of technology systems, information, and software; (3) students use technology tools to enhance learning, to increase productivity and creativity, and to construct technology-enhanced models, prepare publications, and produce other creative works; (4) building on productivity tools, students will collaborate, publish, and interact with peers, experts, and other audiences using telecommunications and media; (5) students utilize technology-based research tools to locate and collect information pertinent to the task, as well as evaluate and analyze information from a variety of sources; and (6) students use technology to make and support decisions in the process of solving real-world problems. Competencies for readiness (kindergarten), foundations (grades 1-3), essentials (grades 4-8), proficiency (grades 9-12), and distinction (honors) are listed for each standard. (Includes a glossary.) (MES)

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Technology Education Standards Rationale

Technology encompasses the tools and strategies for solving problems, using information, increasing productivity and enhancing personal growth. The word *technology* summons an image of a variety of tools ranging from shovels to gene splitters. When asked to develop the original Technology Standards, adopted in 1997, the Committee did so without the benefit of seeing the integration of various technologies into other curricular standards. Over the past four years, significant advances in technology have occurred. These changes have caused many national organizations to review what students need to know and be able to do in relation to technology. Therefore, when asked to review the current standards, the Revision Committee examined national standards (National Educational Technology Standards, Information Power, Information Technology in Education and Technology for All Americans), along with current Arizona standards. The Revision Committee also analyzed current research on technology skills important to business and industry. The Revision Committee reviewed technology that is currently integrated into other content area standards with the vision that as other standards are revised, technology will be seamlessly integrated.

The goal is to help students live, learn and work successfully and responsibly in an increasingly complex, technology-driven society. These Technology Standards are designed to provide foundational skills and processes that students need in order to work productively and creatively in their studies, at work and at home. Research on the transfer of learning strongly supports the position that instruction and educational activities should closely parallel the final desired behavior. It is essential that technology instruction be an integral part of a student's educational experience. Education's role is to help students meet the challenge of the future. Arizona must encourage, assist and provide all students with the required tools and instruction to enable them to acquire knowledge, develop skills and apply these tools successfully in our world.

The following definition of technology is supported in this document:

Technology is the application of tools to solve problems that extend human potential for the benefit of society

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Table 1: Technology Education Standards

***STANDARD 1*: Fundamental Operations and Concepts**

Students understand the operations and function of technology systems and are proficient in the use of technology.

***STANDARD 2*: Social, Ethical and Human Issues**

Students understand the social, ethical and human issues related to using technology in their daily lives and demonstrate responsible use of technology systems, information and software.

***STANDARD 3*: Technology Productivity Tools**

Students use technology tools to enhance learning, to increase productivity and creativity and to construct technology-enhanced models, prepare publications and produce other creative works.

***STANDARD 4*: Technology Communications Tools**

Building on productivity tools, students will collaborate, publish, and interact with peers, experts and other audiences using telecommunications and media.

***STANDARD 5*: Technology Research Tools**

Students utilize technology-based research tools to locate and collect information pertinent to the task, as well as evaluate and analyze information from a variety of sources.

***STANDARD 6*: Technology as a Tool for Problem Solving and Decision-making**

Students use technology to make and support decisions in the process of solving real-world problems.

TECHNOLOGY EDUCATION STANDARDS

STANDARD 1: FUNDAMENTAL OPERATIONS AND CONCEPTS

Students understand the operations and function of technology systems and are proficient in the use of technology.

READINESS (Kindergarten)

Students know and are able to do the following:

- **1T-R1. Communicate about basic technology components using developmentally appropriate and accurate terminology**

  PO 1. Use basic vocabulary related to the use of technology (e.g., mouse, keyboard, monitor, toolbar, menu, window, folder, icon, spreadsheet, word processor, cassette player, CD player versus DVD versus video tape, video camera)[1]
  PO 2. Identify the components of a computer (e.g., mouse, keyboard, monitor, CPU, printer)

- **1T-R2. Use input devices and output devices successfully to operate computers, VCRs, audiotapes, and other technologies**
  See: Workplace Skills (7WP-R1)[2]

  PO 1. Demonstrate start up and shut down procedures of basic technology components (e.g., computers, tape recorders, cassette players, VCRs)
  PO 2. Use devices to complete a task (e.g., mouse, keyboard, printer, remote control, microphone)

[1] *Items following "e.g.," are provided as examples/suggestions and, therefore, are not all-inclusive.*

[2] *The use of cross-references to the other Arizona Academic Standards is intended to emphasize that technology is seen as an* ***integrated*** *component of the educational and learning process. Teachers may find additional opportunities for integrating the Technology Standards with other academic standards.*

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FOUNDATIONS (Grades 1-3)

Students know and are able to do all of the above and the following:

- **1T-F1. Communicate about internal technology operations using developmentally appropriate and accurate terminology**
  See: Language Arts (VP-F), Science (1SC-F4, PO1-2) and Workplace Skills (1WP-F5)

  PO 1. Apply basic vocabulary related to the internal operations of the technology (e.g., disks, drives, RAM, ROM, CD-ROM port, CD-ROM and DVD)

- **1T-F2. Demonstrate functional operation of technology components**
  See: Comprehensive Health {Physical Activities} (1PA-F1) and Workplace Skills (7WP-F2)

  PO 1. Demonstrate correct ergonomic use of technology (e.g., correct posture, position of hands and feet, proper height of keyboard, proper lifting and moving of equipment)
  PO 2. Use multimedia resources (e.g., interactive books, educational software, elementary multimedia encyclopedias)
  PO 3. Access information sources (e.g., CD-ROMs, encyclopedias, pre-bookmarked Internet sites)
  PO 4. Communicate electronically, under teacher supervision (e.g., video, audio, e-mail) *(For Internet safety protocols see Technology 2T-F2, PO1)*

- **1T-F3. Use developmentally appropriate technology resources to access information and communicate electronically**
  See: Language Arts (VP-F), Mathematics (1M-F7) and Workplace Skills (7WP-F1)

  PO 1. Operate keyboard and other common input and output devices (including adaptive devices for special needs when necessary)
    a) Use device in response to software (e.g., point and click, arrow and enter/return keys)
    b) Use keyboard effectively (e.g., knows locations and function of keys, begins touch-typing strategies by grade three)
  PO 2. Retrieve and save information (e.g., text documents, digital photos, music, video)
  PO 3. Print documents, text or image

ESSENTIALS (Grades 4-8)

Students know and are able to do all of the above and the following:

- **1T-E1. Communicate about technology using developmentally appropriate and accurate terminology**
  See: Language Arts (VP-E)

  PO 1. Use basic vocabulary related to technology (e.g., FireWire, USB, parallel, serial, scanning, digitizing, OCR)
  PO 2. Use basic vocabulary related to systems (e.g., network, infrastructure, Internet, Intranet, LAN, WAN, Ethernet, firewall, server, TCP-IP)

- **1T-E2. Demonstrate increasingly sophisticated operation of technology components**
  See: Arts {Music} (1AM-E9-10), Mathematics (1M-E6, 2M-E1), Science (1SC-E2) and Workplace Skills (7WP-E1)

  PO 1. Use touch-typing strategies to reach a minimum of 25 words per minute with accuracy (e.g., meets school-identified standard for accuracy)
  PO 2. Retrieve and save information remotely (e.g., network servers, Internet, Intranet, peripheral devices)
  PO 3. Demonstrate functional operation of technology devices (e.g., presentation devices, digital cameras, scanners, document cameras, scientific probes) (*See Technology 3T-E2, PO1*)

- **1T-E3. When a system is not working properly, demonstrate an understanding of hardware, software and connectivity problem solving processes**
  See: Science (1SC-E1)

  PO 1. Use troubleshooting strategies to solve applications problems (e.g., file management strategies, online help strategies, documentation, collaboration with others)
  PO 2. Use troubleshooting strategies to solve basic hardware problems (e.g., use online help, use documentation, collaboration with others)
  PO 3. Use troubleshooting strategies to identify basic connectivity problems (e.g., use online help, use documentation, collaboration with others)

PROFICIENCY (Grades 9-12)

Students know and are able to do all of the above and the following:

- **1T-P1. Use the appropriate technology device to complete a task**
  See: Mathematics (3M-P1 and P3, 4M-P2)

  PO 1. Given a task, select the appropriate technology device(s) (e.g., reporting a news story using digital and video camera and online editing to publish on the Web; gathering data using scientific probes and graphing calculators)

- **1T-P2. Make informed choices among technology systems, resources and services**
  See: Arts {Music} (1AM-P10) and Language Arts (VP-P)

  PO 1. Create criteria to compare and contrast technology systems, resources and services (e.g., which Internet service provider, music system, Web browser or graphics package meets criteria)

DISTINCTION (Honors)

Students know and are able to do all of the above and the following:

- **1T-D1. Manage a complex technology system such as a local area network, video distribution of a school, or lighting for a production**
  See: Arts {Theatre} (1AT-D4, D8-9)

- **IT-D2. Set up and manage a homework hotline, tutoring site, discussion group, threaded discussion and/or e-mail system for students and parents**

STANDARD 2: SOCIAL, ETHICAL AND HUMAN ISSUES

Students understand the social, ethical and human issues related to using technology in their daily lives and demonstrate responsible use of technology systems, information and software.

READINESS (Kindergarten)

Students know and are able to do the following:

- **2T-R1. Work cooperatively and collaboratively when using technology in the classroom**
  See: Arts {Theatre} (1AT-R5)

  PO 1. Demonstrate respect for other students while using technology (e.g., take turns, share resources)
  PO 2. Demonstrate appropriate behavior (e.g., use only your documents and folders)

- **2T-R2. Practice responsible use of technological devices**
  See: Arts {Visual} (1AV-R6) and Social Studies (2SS-R1)

  PO 1. Operate equipment to ensure equipment is unharmed (e.g., do not bang on keys; no food or objects near equipment; care for disks and CD-ROM; use proper shut down procedures) *(See Technology IT-R2, PO1)*
  PO 2. Recognize that damaging school equipment is destroying public property
  PO 3. Recognize that changing someone's work without permission is unacceptable

FOUNDATIONS (Grades 1-3)

Students know and are able to do all of the above and the following:

- **2T-F1. Demonstrate respect for other students while using technology**
  See: Social Studies (2SS-F3, PO1-3)

  PO 1. Describe and practice respect for other students while using technology (e.g., do not duplicate software or documents without authorization; report behaviors that threaten the ability of others to legitimately use resources; allow peers to work uninterrupted; do not erase or damage files, documents or projects)

- **2T-F2. Practice responsible use of software**

  PO 1. Use equipment appropriately (e.g., use for assignments and school work versus personal pleasure; do not send threats)
  PO 2. Describe and practice legal and ethical behaviors when using technology (e.g., do not copy, alter, delete or move another person's work)
  PO 3. Demonstrate and practice safe and correct security procedures (e.g., protect password)

- **2T-F3. Discuss common uses of technology in daily life and the advantages and disadvantages those uses provide**
  See: Comprehensive Health (4CH-F2), Science (3SC-F4), Social Studies (4SS-F2, PO4)

  PO 1. Describe three-to-five uses of technology in daily life
  PO 2. Discuss the positive and negative impact of technologies such as television and computers on daily life (e.g., negative health impact; safe Internet use, such as knowing what information is safe to share when using e-mail, "talking" to strangers)

ESSENTIALS (Grades 4-8)

- **2T-E1. Discuss basic issues related to responsible use of technology and information and describe personal consequences of inappropriate use**
  See: Comprehensive Health (4CH-E3), Science (2SC-E2) and Social Studies (2SS-E2, PO1, 2SS-E5, PO1, 2SS-E7, PO1)

  PO 1. Explain the purpose of an Acceptable Use Agreement/Policy and the consequences of inappropriate use
  PO 2. Describe and practice safe Internet/Intranet usage (e.g., do not post inappropriate or harmful material; do not reveal personal information; follow district Acceptable Use Policy)
  PO 3. Describe and practice "netiquette" when using the Internet and electronic mail (e.g., publish photographs of people only with their permission)

- **2T-E2. Exhibit legal and ethical behaviors when using technology and information and discuss consequences of misuse**

  PO 1. Follow the rules for deciding when permission is needed for using the work of others, (e.g., some sites specify whether permission is required or not, some work is in public domain)
  PO 2. Obtain permission to use the work of others *(See Technology 5T-E2, PO3)*
  PO 3. Provide complete citations from electronic media (e.g., use age-level appropriate, district developed standardized reference formats for citing source of information) *(See Technology 5T-E2, PO5)*
  PO 4. Explain copyright laws and "fair use" guidelines (e.g., in relationship to print, video, computer software, multimedia project, music)
  PO 5. Describe copyright guidelines[3] for multimedia creation and Internet development
  PO 6. State personal consequences (e.g., fines, loss of privileges, grade reduction, academic probation) related to violations of:
    a) Copyright (e.g., sheet music, prerecorded music, print, video, images)
    b) Password security
    c) Privacy (e.g., student files on a network, floppy disk and hard drive)
    d) Internet usage (e.g., inappropriate postings, accessing inappropriate material)
  PO 7. Discuss the negative impact of unauthorized intrusions into networked data and describe actions to prevent these intrusions

- **2T-E3. Demonstrate knowledge of current changes in technologies and the effect those changes have on the workplace and society**
  See: Comprehensive Health (4CH-E2) and Social Studies (3SS-E6, PO8, 3SS-E7, PO5)

  PO 1. Compare information technologies from past to present and describe the implications of computer power doubling every 18 months (Moore's Law) (e.g., size, speed, cost)
  PO 2. Describe the impact of technology use on individuals at home and in the workplace (e.g., computer has replaced the TV for some individuals; free time is spent using technology versus outdoor activities; jobs have been created and/or eliminated due to technological advances; possible infringement of privacy)
  PO 3. Discuss the social implications of the "digital divide" (e.g., homes and schools with much technology and connectivity versus those with less or none)

[3] http://literacy.kent.edu/Oasis/Workshops/copytoc.html; and http://lcweb.loc.gov/copyright/circs/circ1.html

PROFICIENCY (Grades 9 – 12)

Students know and are able to do all of the above and the following:

- **2T-P1. Identify capabilities and limitations of contemporary and emerging technology resources and assess the potential of these systems and services**
  See: Arts {Music} (2AM-P3) and Social Studies (1SS-P1, PO2), (1SS-P19, PO1)

  PO 1. Make informed choices among technology systems, resources and services in a variety of contexts
  PO 2. Explain the impact computer networking has on an organization (e.g., cost, allocation of resources, security, productivity, communications, and organizational or societal change)
  PO 3. Predict future technological advances and the impact of them for individuals and the workplace (e.g., given the current "instant access," what's next?)

- **2T-P2. Analyze advantages and disadvantages of widespread use and reliance on technology in the workplace and in society as a whole**
  See: Comprehensive Health (4CH-P2), Science (3SC-P3), Social Studies (1SS-P1, PO1-2) and Workplace Skills (7WP-P2)

  PO 1. Explain the cost of maintaining technology in terms of money and manpower
  PO 2. Describe the effect on an organization when technology fails (e.g., power outage)
  PO 3. Analyze the long-term impact of technologies and their obsolescence (e.g., on the preservation of, and access to, older technologies; responsible disposal of old technologies; retraining of workforce)

- **2T-P3. Demonstrate legal and ethical behaviors among peers, family, and community regarding the use of technology and information**
  See: Social Studies (2SS-P8, PO2 and PO4-6)

  PO 1. State personal liability issues related to security systems to protect technologies (e.g., use of passwords and the importance of protecting them; use of encryption software)
  PO 2. Discuss individual privacy issues versus First Amendment protection (e.g., federal and state filtering and access legislation)
  PO 3. Explain the impact of unauthorized intrusions (i.e., hacking, spamming, manipulating or deleting data) on society
  PO 4. Describe computer viruses and ways to protect computers from them

DISTINCTION (Honors)

Students know and are able to do all of the above and the following:

- **2T-D1. Analyze current changes in technologies and predict the effect those changes have on the workplace and society**
  See: Comprehensive Health (4CH-D1) and Science (3SC-D1)

- **2T-D2. Advocate for legal and ethical behaviors among peers, family, and community regarding the use of technology and information**
  See: Comprehensive Health (4CH-D1, 5CH-D1) and Science (4SC-D1 and D2)

STANDARD 3: TECHNOLOGY PRODUCTIVITY TOOLS

Students use technology tools to enhance learning, to increase productivity and creativity, and to construct technology-enhanced models, prepare publications and produce other creative works.

READINESS (Kindergarten)

Students know and are able to do the following:

- **3T-R1. Use technology drawing tools for communicating and illustrating**
  See: Language Arts (R-R5, PO1 and W-R3, PO1)

  PO 1. Using a drawing program, create a picture story with support from teacher, family members or student partners
  PO 2. Using a drawing program, add name and letters to illustrations

FOUNDATIONS (Grades 1-3)

Students know and are able to do all of the above and the following:

- **3T-F1. Use prescribed technology writing or drawing tools for communicating and illustrating**
  See: Language Arts (W-F1, PO5), Science (6SC-F7) and Social Studies (1SS-F1)

  PO 1. Use word processing to create a document and, where developmentally appropriate, use editing tools
  PO 2. Insert a graphic into a word processing document

- **3T-F2. Use prescribed technology tools for data collection and basic analysis**
  See: Mathematics 2M-F1 and 2M-F2)

  PO 1. Use a spreadsheet or database application to perform simple data analysis (e.g., comparisons, collections, graphs and charts)

- **3T-F3. Use prescribed technology tools for publishing and presenting information**

  PO 1. Use a pre-designed template or stationery to publish a document (e.g., newsletter, slide show, greeting card, certificate)
  PO 2. Create a multimedia product with support from teachers, family or student partners (e.g., slide show, hyperstack, video)

ESSENTIALS (Grades 4-8)

Students know and are able to do all of the above and the following:

- **3T-E1. Use formatting capabilities of technology tools for communicating and illustrating**
  See: Language Arts (W-F1, PO5)

  PO 1. Use word processing editing tools to revise a document (e.g., cut and paste, tabs and margins, font size, font style, delete and undo, selecting, spell check, click and drag)
  PO 2. Design a word processing document with graphical elements (e.g., clip art, digital photographs, symbols, using text wrap, cropping, sizing, drawing tools)

- **3T-E2. Use a variety of technology tools for data collection and analysis**
  See: Mathematics (5M-E6) and Social Studies (1SS-E8, PO1)

  PO 1. Use technology device(s) to collect and record data (e.g., science probe, graphing calculator, PDA {personal digital assistant}, alternative keyboards, webcams, GPS and Internet)
  PO 2. Create and use a spreadsheet to analyze data (e.g., use formulas, create charts and graphs)
  PO 3. Create a database with multiple fields to manipulate data in a variety of ways (e.g., sort, merge, list and report)

- **3T-E3. Publish and present information using technology tools**
  See: Science (1SC-E3, PO2 grades 4-5, or PO1, grades 6-8)

  PO 1. Design and create a multimedia presentation or Web page using multiple digital sources (e.g., from camera, video, scanner, CD-ROM, Internet)
  PO 2. Publish or present the above production *(See Technology 4T-E2, PO1 or 4T-E3)*

- **3T-E4. Use technology tools to support system analysis and modeling**
  See: Mathematics (2M-E5,6M-E1), Science (1SC-E2, E5) and Workplace Skills (6WP-E1)

  PO 1. Manipulate several variables in a computer simulation to reach a desired outcome (e.g., simulation software, Web-based simulation, textbook support software)

PROFICIENCY (Grades 9-12)

Students know and are able to do all of the above and the following:

- **3T-P1. Communicate to a variety of audiences using professional level technology tools**
  See: Mathematics (2M-P2), Science (5SC-P3-4) and Social Studies (4SS-P2, PO1-2)

  PO 1. Create documents using professional format (e.g., résumé, letter of application, electronic portfolio, research paper)
  PO 2. Merge information from one document to another (e.g., mail merge, publish and subscribe)
  PO 3. Create a document that utilizes hyperlinks (e.g., Web link in documents, linking a word to a glossary, creating an interactive index)

- **3T-P2. Use a variety of technology tools for data collection and analysis to support a decision**
  See: Arts {Theatre}(1AT-P6), Mathematics (2M-P2, 3M-P3) and Social Studies (1SS-P1, PO2)

  PO 1. Select appropriate technology devices to collect and record data (e.g., science probe, graphing calculator, PDA {personal digital assistant}, alternative keyboard, webcam, GPS and Internet)
  PO 2. Create and use a spreadsheet to analyze variables (e.g., 12-month budget, loan rates, science and math experiments, and investment portfolios)
  PO 3. Analyze data and create a database report from information manipulated in a variety of ways to support decisions (e.g., census data, polls and surveys, annual report)

- **3T-P3. Use technology tools to publish and present information with interactive features**
  See: Mathematics (2M-P7, 4M-P2) and Science (5SC-P2 and P6, 6SC-P1)

  PO 1. Design and create a multimedia presentation or Web site with interactive features (e.g., animation, sound, action buttons to play, video, control devices, open other applications, link to a Web site)

- **3T-P4. Use technology tools to support modeling and system analysis**
  See: Science (3SC-P2) and Workplace Skills (6WP-P3)

  PO 1. Manipulate several variables in a computer simulation to reach a desired outcome (e.g., simulation software, Web-based simulation, textbook support software)

DISTINCTION (Honors)

Students know and are able to do all of the above and the following:

- **3T-D1. Demonstrate technical standards, practices and techniques in videography by creating a product**
  See: Arts {Theatre} (1AT-D4-6)

STANDARD 4: TECHNOLOGY COMMUNICATIONS TOOLS

Building on productivity tools, students will collaborate, publish, and interact with peers, experts and other audiences using telecommunications and media.

READINESS (Kindergarten)

No concepts identified for this level

FOUNDATIONS (Grades 1-3)

Students know and are able to do the following:

- **4T-F1. Communicate with others using telecommunications, with support from teachers, family members or student partners**
  See: Language Arts (W-F4)

  PO 1. Communicate information electronically with support from teachers, family members or student partners (e.g., e-mail, videoconferencing, Web page)

- **4T-F2. Use technology tools for individual and collaborative communication activities to share products with audiences inside and outside the classroom**
  See: Language Arts (W-F1)

  PO 1. Plan, design, and present an academic product to classroom or community (e.g., slide show, progressive story, drawings, story illustrations, video production, digital images)

ESSENTIALS (Grades 4-8)

Students know and are able to do all of the above and the following:

- **4T-E1. Use telecommunications efficiently and effectively to access remote information and communicate with others in support of facilitated and independent learning**
  See: Language Arts (W-E3-E6)

  PO 1. Communicate independently via e-mail, Internet, and/or videoconference with people in a remote location *(For Internet safety see Technology 2T-E1)*

- **4T-E2. Use technology tools for individual and collaborative writing, communication and publishing activities to create curricular related products for audiences inside and outside the classroom**
  See: Language Arts (W-E2-E7, LS-E)

  PO 1. Plan, design and present an academic product using technology tools (e.g., multimedia authoring, presentation software, digital cameras, scanners, projection devices)

- **4T-E3. Collaboratively use telecommunications and online resources**
  See: Arts {Theatre} (2AT-E1) and Science (1SS-E8, PO2, grades 6-8)
  (For Internet safety issues see Technology 2T-E1)

  PO 1. Request collaborative exchanges among people in local and/or remote locations (e.g., e-mail, online discussions, Web environments)
  PO 2. Communicate electronically to collaborate with experts, peers and others to analyze data and/or develop an academic product (e.g., e-mail, discussion group, videoconferencing)
  PO 3. Present an academic product to share data and/or solutions (e.g., Web site, multimedia presentation, video)

PROFICIENCY (Grades 9-12)

Students know and are able to do all of the above and the following:

- **4T-P1. Routinely and efficiently use online information resources to meet needs for collaboration and communications**
  See: Language Arts (W-P2-6) and Workplace Skills (1WP-P5)

  PO 1. Using criteria for research in Standard 5, create an end product (e.g., multimedia presentation, publication, Web page) to disseminate the information

- **4T-P2. Manage and communicate personal and professional information utilizing technology tools and resources**
  See: Language Arts (W-P2-6) and Workplace Skills (7WP-P1, 1WP-P3)

  PO 1. Plan and present a product appropriate to the task

- **4T-P3. Using technology, collaborate with peers, experts, and others to contribute to a content-related knowledge base**
  See: Workplace Skills (1WP-P3-6 and P9, 4WP-P1)

  PO 1. Contribute digitized material (e.g., video interviews, scanned pictures, text, and graphic information) to a project archive and create links to resource material
  PO 2. Conduct e-mail interviews with content experts
  PO 3. Consider several methods and choose the best for building group collaboration in research, communication and presentation among students in physically separated schools

DISTINCTION (Honors)

Students know and are able to do all of the above and the following:

- **4T-D1. Use technology to compile, synthesize, produce, and disseminate information, models, and other creative works**
  See: Language Arts (LS-D) and Workplace Skills (1WP-D4)

- **4T-D2. Participate in a student think-tank simulation to solve a technology-based problem**
  See: Workplace Skills (1WP-D5, 4WP-D1)

STANDARD 5: TECHNOLOGY RESEARCH TOOLS

Note: The performance objectives described in Standard 5 rely upon the mastery of skills and understanding of concepts from Standards 1-4 of this document

Students will utilize technology-based research tools to locate and collect information pertinent to the task as well as evaluate and analyze information from a variety of sources.

READINESS (Kindergarten)

No concepts identified for this level

FOUNDATIONS (Grades 1-3)

Students know and are able to do the following:

- **5T-F1. Recognize electronic information sources**
  See: Arts {Theatre} (2AT-F1), Language Arts (W-F5) and Workplace Skills (7WP-E2)

  PO 1. Identify potential sources of information about a topic (e.g., video or cassette tapes, Web pages, CD-ROMs)
  PO 2. Locate information in a resource selected by the teacher (e.g., Web page, CD-ROM)

ESSENTIALS (Grades 4-8)

Students know and are able to do all of the above and the following:

- **5T-E1. Locate information from electronic resources**
  See: Arts {Theatre} (2AT-E4), Language Arts (W-E8) and Mathematics (2M-E1, PO1)

  PO 1. Identify electronic research resources
  PO 2. Define subject searching and devise a search strategy to locate information using available electronic research resources (i.e., electronic card catalog, online or CD-ROM reference sources, grade level appropriate Internet resources)
  PO 3. Explain the difference between subject and keyword searching
  PO 4. Construct keyword searches including basic Boolean logic using available electronic research resources (i.e., electronic card catalog, online or CD-ROM reference sources and grade level appropriate Internet resources)
  PO 5. Identify the author, copyright date and publisher of information located in electronic resources, including Internet resources

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- **5T-E2. Evaluate the accuracy, relevance, appropriateness, comprehensiveness and bias of electronic information sources**
  See: Social Studies (1SS-E1, PO2 and 1SS-E8, PO5-6)

  PO 1. Create citations for electronic research sources following a prescribed format *(See Technology 2T-E2,PO2)*
  PO 2. Gather research from a variety of electronic sources and identify the most appropriate information for answering the research question *(See Technology 5T-D2, PO2)*
  PO 3. Obtain permission, when appropriate, to use the work of others *(See Technology 2T-E2, PO3)*
  PO 4. Identify the components of a URL to determine the source of the information
  PO 5. Identify the author of the information found from electronic resources and determine whether the author is an authority, displays bias and is a primary or secondary source

PROFICIENCY (Grades 9 - 12)

Students know and are able to do all of the above and the following:

- **5T-P1. Develop a research strategy to find accurate, relevant, appropriate electronic information sources**
  See: Arts [Theatre] (2AT-P1), Language Arts (W-P4), Mathematics (2M-E1, PO 1), Social Studies (1SS-P2, PO1 and PO3) and Workplace Skills (7WP-P1)

  PO 1. Explain the difference between Internet searching using directories and search engines
  PO 2. Construct online or electronic database searches using Boolean logic (AND, OR, NOT)
  PO 3. Independently select appropriate electronic resources from school, community and the world (via online) to be used to locate information needed when presented with a problem to solve
  PO 4. Evaluate the appropriateness and effectiveness of electronic resources (e.g., purpose, credibility of author)

- **5T-P2. Investigate and apply expert systems (e.g., search engines and intelligent agents)**
  See: Arts [Theatre] (2AT-P1) and Workplace Skills (1WP-P9, P10)

  PO 1. Given a concept, use online search engines as well as resource-specific search features (e.g., CD-ROMs) to find relevant information
  PO 2. Adapt software for personal efficiency by setting preferences for effective use of the software
  PO 3. Use advanced features (e.g., preferences, advanced searching, filtering) in Internet browser and information software

- **5T-P3. Present research findings from electronic resources using academic models for citations and format**
  See: Workplace Skills (1WP-P10, 2WP-P2)

  PO 1. Utilize evaluation criteria (authority, accuracy, relevancy, timeliness) for information found on the Internet to present research findings
  PO 2. Create citations for resources used following an academic model to present research findings

DISTINCTION (Honors)

Students know and are able to do all of the above and the following:

- **5T-D1. Design a research project using a variety of technologies to solve a real-world problem**
  See: Language Arts (W-D1)

- **5T-D2. Evaluate the accuracy, relevance, appropriateness, comprehensiveness and bias of electronic information sources**
  See: Arts {Theatre} (2AT-D2)

  PO 1. Compare and contrast bias in electronic information resources
  PO 2. Create a presentation on bias found in electronic information resources to present to a younger audience *(See Technology 5T-E2, PO4)*

STANDARD 6: TECHNOLOGY AS A TOOL FOR PROBLEM SOLVING AND DECISION-MAKING

Students use technology to make and support decisions in the process of solving real-world problems.

Note: Problem solving is inherent in all disciplines. Technology Standard 6 is designed to provide a cumulative (capstone) experience
See: Science 3SC in its entirety and Workplace Skills 3WP in its entirety

READINESS (Kindergarten)

No concepts identified for this level

FOUNDATIONS (Grades 1-3)

Students know and are able to do the following:

- **6T-F1. Use technology resources for problem solving, self-directed learning and extended learning activities**

  PO 1. Based on a class-defined problem, use technology to:
  - a) collect data
  - b) interpret data
  - c) express a solution to the problem

  PO 2. Based on a problem selected by the student, use technology to:
  - a) collect data
  - b) interpret data
  - c) express a solution to the problem

ESSENTIALS (Grades 4-8)

Students know and are able to do all of the above and the following:

- **6T-E1. Determine when technology is useful and select and use the appropriate tools and technology resources to solve problems**

  PO 1. Based on a problem selected by the student, identify and use appropriate technology tools to:
  - a) collect data (e.g., counting versus using a probe, book index versus online index)
  - b) interpret data (e.g., use of a spreadsheet instead of a graphic organizer)
  - c) develop a solution to the problem (e.g., creating a model versus using a spreadsheet)
  - d) present findings (e.g., create a poster versus an electronic presentation)

PROFICIENCY (Grades 9-12)

Students know and are able to do all of the above and the following:

- **6T-P1. Investigate technology-based options, including distance and distributed education for lifelong learning**
  See: Workplace Skills (1WP-P9)

  PO 1. Locate and use an online tutorial and discuss the benefits and disadvantages of this method of learning
  PO 2. Research a career and predict the advanced training needed to maintain success in the career
  PO 3. Design and implement a personal learning plan that utilizes technology (e.g., identify a topic such as an academic interest, personal hobby, health issue, or potential job sources, and utilize research skills from Standard 5 to support lifelong learning)

- **6T-P2. Routinely and ethically use productivity tools, communication tools and research skills to solve a problem**
  See: Mathematics (2M-P7-8)

  PO 1. As a capstone experience in a content area, solve a problem using appropriate technology tools to:
    a) identify the problem and formulate the strategy to solve the problem (e.g., brainstorming tools, flowcharting, online resources)
    b) collect data (e.g., using GPS, PDA {personal digital assistant}, Internet, probeware, recordings)
    c) interpret data (e.g., visualization, simulation, or modeling software)
    d) develop a solution to the problem
    e) present findings (e.g., electronic presentation, Web page, professionally formatted document, computer model, audio or video presentation, Web streaming)

DISTINCTION (Honors)

Students know and are able to do all of the above and the following:

- **6T-D1. Collaborate with peers, experts and others to compile, synthesize, produce and disseminate information and models for the purpose of suggesting solutions to a complex problem**
  See: Science (1SC-D1)

TECHNOLOGY EDUCATION STANDARDS GLOSSARY

Acceptable Use Agreement/Policy (AUA or AUP)

A form that is signed by an individual, and when appropriate, legal guardian/parent, that acknowledges responsible behavior and use for the technology provided by the district, including the legal implications of the use of the Internet.

Adaptive Devices

Devices that help people with visual impairments, hearing losses, severe speech impairments, physical disabilities and/or severe learning disabilities cope with demands that are placed upon them from their environment. (See also Assistive Technology)

Assistive Technology

Any item, piece of equipment or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain or improve the functional capabilities of children with disabilities. (Federal Register, August 19, 1991, p. 41272.) (See also Adaptive Devices)

Alternative Keyboard

A self-contained word processing device with full-size keyboard and memory that allows editing, printing or direct transfer to a computer for storage and manipulation (brand names, e.g., AlphaSmart, Dream Writer).

Bit

A contraction of binary digit. It is the smallest unit of storage in a computer. The bit is represented by a zero (0) or one (1) for information; instructions and data may be represented by sets of bits. Compare byte.

Bookmark

A marker that allows a user to identify a site on the Internet to allow rapid access. Also, a marker that allows a user to mark a place in a word processing document.

Boolean (also Boolean Operator)

A system of logic that, when applied to searches, modifies search terms with the "operators" AND, OR and NOT. Boolean operators allow you to broaden or narrow the range of your search.

Browser

An application that allows people to scan and interact with a network. Netscape and Internet Explorer are examples of browsers.

Byte

A set of bits, typically eight, that comprises the smallest accessible unit in computer memory. It is the equivalent of one letter or one digit from 0 to 9.

CD (Compact Disc - Player/Reader)

A device attached to a computer that provides access to information such as encyclopedias, dictionaries, databases or music. These are devices that allow users to store or write to a CD.

CD-ROM (Compact Disc – Read Only Memory)

A CD-ROM format used to store large amounts of information. A flat round disc that is used to store digital data. The disc is read by a laser. You can only read information on a CD. You cannot record information on a CD.

Click

To press and release a mouse or trackball button once while the cursor is stationary.

Clip Art

Graphics that can be cut and pasted electronically into documents. Clip art can be photographs, diagrams, maps, illustration or cartoons.

Clipboard

A special file or memory area (buffer) where data is stored temporarily before being copied to another location. In Microsoft Windows and the Apple Macintosh operating systems, the Clipboard can be used to copy data from one application to another. The Macintosh uses two types of clipboards. The one it calls the Clipboard can hold only one item at a time and is flushed when you turn the computer off. The other, called the Scrapbook, can hold several items at once and retains its contents from one working session to another.

Copyright guidelines

Intellectual Property Rights (copyright) are guaranteed by the U.S. Constitution and Federal law. These protect the individual who produces creative works from the theft of their work by others. Within the U.S. (not necessarily a part of any international copyright agreements), Fair Use Guidelines provide limited privileges to educators. Legal citation: http://lcweb.loc.gov/. There are a number of additional sites that have helpful information on this topic, including: http://literacy.kent.edu/Oasis/Workshops/copytoc.html.

CPU (Central Processing Unit)

The CPU is the brains of the computer. Sometimes referred to simply as the processor or central processor, the CPU is where most calculations take place. In terms of computing power, the CPU is the most important element of a computer system.

Cropping

Used in computer graphics, cropping is a method used to cut off the sides of an image to make it the proper size or to remove unwanted parts. Most graphics applications allow you to crop images with a clip feature.

Cut [redacted]

1) removes highlighted item and places a copy of it on the clipboard.
2) A process of replacing a video picture with another instantaneously, or making an abrupt change of image or sound.

Database

A collection of data arranged into categories. These can then be manipulated by the user to create reports.

Delete

Removing a character, word, line, paragraph or other specified amount of text from a document.

Digital Camera

A hardware product that captures an image and sends it to a computer.

Digital Photo

An image that is stored in bits and bytes on a computer. It can be manipulated and displayed on a computer screen.

Disc

A term used when referring to a compact disc or laser disc on which information is stored optically.

Disk

Media that stores computer information. There are two basic types: hard disks (or drives) and floppy disks.

Document

A file created by a program.

Drag

To hold down a mouse button while moving the mouse. It is a way to move objects, resize borders and objects or select text in blocks.

Drive

Any device that reads and writes information, such as a hard drive, floppy drive, CD ROM drive or tape drive.

Drawing Tools/Program

Software used to create any type of drawing, from a simple line sketch to a magnificent full-color poster. Drawing programs are used by graphic artists and designers.

E-mail (Electronic Mail)

The electronic transmission of letters, documents, messages and memos from one computer to another over a network.

Electronic Card Catalog

A computer-based version of the traditional library card catalog. A patron uses a computer to type in or select pre-determined search strategies to access items in a library's holdings.

Encryption Software

Encryption software puts data into a secret code so it is unreadable, except by authorized users. The most common form is public encryption, which is a way of encrypting messages in which each user has a public key and a private key. Messages are sent encrypted with the receiver's public key; the receiver decrypts them using the private key. Using this method, the private key never has to be revealed to anyone other than the user.

Enter Key/Return Key

A key located at the right end of the third row from the bottom on a keyboard. Pressing the Enter key performs a typed or highlighted command. In word processing, the Enter key starts a new paragraph.

Erase Disk

On the Macintosh, the term for formatting or initializing a disk.

Ergonomics

Science of body positioning to reduce physical, mental and emotional stress on the individual.

Ethernet

The most commonly used technology for networking computers.

Fair Use Guidelines

Support for educators and educational institutions within compliance of U.S. Intellectual Property Rights laws (copyright). Fair Use is an agreement between industry (copyright holders), education and the government allowing limited use without purchase of materials. http://fairuse.stanford.edu/

Filter

A device or program that separates data or signals in accordance to specific criteria. Currently, educational institutions are required to have some form of filter between students and the Internet. Compare to firewall.

Firewall

A system designed to prevent unauthorized access to or from a private network. Firewalls can be implemented in both hardware and software, or a combination of both, and are frequently used to prevent unauthorized Internet users from accessing private networks connected to the Internet, especially intranets. All messages entering or leaving the intranet pass through the firewall, which examines each message and blocks those that do not meet the specified security criteria. There are several types of firewall techniques: packet filters, application gateways, circuit-level gateways and proxy servers.

FireWire

Industry standard. A "bus" (device) that can move large amounts of data between computers and peripheral devices. Manufacturers of multimedia devices use this technology because it speeds up the movement of multimedia data and large files, and enables the connection of digital devices (e.g., digital camcorders, digital video tapes and music systems) directly to a personal computer.

Floppy Disk Drive

A device used to write and read data to a floppy disk and transfer the information to the computer's memory.

Floppy Disk

A 3.5 inch removable disk that's flexible (although it's protected by a hard plastic case). Also called a diskette. Compare disk.

Flow chart

A flow chart is a graphical representation of a computer program or order of operations. The process of flow charting includes defining the project, determining the steps in the project, creating a graphical representation, and testing assumptions about the project (or process).

Folder

In graphical user interfaces such as Windows and the Macintosh environment, a folder is an object that can contain multiple documents. Folders are used to organize information.

Font

A single style of typeface and size (e.g., Times New Roman, 12pt).

Format/Formatting

1) (noun) The layout, presentation or arrangement of data on a screen or paper.
2) (verb) The process whereby a disk is made ready for storing data by organizing the surface into tracks and sectors. Synonymous with initialization. Compare Erase Disk.

FTP (File Transfer Protocol)
A method of transferring files between computers connected to the Internet.

GPS (Global Positioning System)
A system of satellites that transmit continually, which make it possible to identify each location through a receiving unit, by triangulation.

Graphic Calculator
A calculator that allows the user to program in a formula to present data visually in graph or chart form.

Graphic Organizer
Software that visually organizes the thought or creative process. Also known as storyboard software, these combine both icons (graphics) and text to give structure and logic to a project or presentation.

GUI (Graphical User Interface)
A program interface that takes advantage of the computer's graphics capabilities to make the program easier to use.

Hacking
Attempts to gain unauthorized entry into a computer system or network.

Hard Drive
The primary storage device for your computer. Also called hard disk. It is where applications, utilities and files are stored.

HTML (HyperText Markup Language)
A programming language for creating pages on the World Wide Web.

Hyperlink, Hypermedia, Hyperstack
Hyper – multi-dimensional. Media – text, graphics, sound, animation and video. Hypermedia was originally coined to describe how different forms of information can be linked in a non-linear fashion. Users move from one group of information to another by clicking on text or graphics on a computer screen. These "hyperlinks" allow users to individualize the way they move through and process the information being presented to them.

Initialization
The process whereby a disk is made ready for storing data by organizing the surface into tracks and sectors. Synonymous with formatting. Compare Erase Disk.

Input Device

A machine through which data and instructions are entered into the computer's main memory. A mouse, a graphics tablet, and detachable keyboards are examples of input devices.

Intelligent Agents

Programs, used extensively on the Web, that perform tasks such as retrieving and delivering information and automating repetitive tasks. Agents are designed to make computing easier. Currently they are used as Web browsers, news retrieval mechanisms and shopping assistants. By specifying certain parameters, agents will "search" the Internet and return the results directly back to the user's PC. Some intelligent agents are also used as tools to track Web behavior; they can even "watch" as the user surfs the 'Net and record how often he/she visits a certain site. Later, they can be used to automatically download the user's favorite sites, letting the user know when a favorite site has been updated, and even tailoring specific pages to suit the user's tastes.

Interactive

Refers to an application or system that provides information in response to the user's input.

Internet

A global communications network that is a collaborative effort among educational institutions, government agencies, various commercial and nonprofit organizations, and individual users. The Internet allows three primary functions: communications (e-mail and news), retrieval of information and transferring files (FTP).

Intranet

The term used for the implementation of Internet technologies (communications protocol/mail/file transfer/Web browsing/user interfaces/terminal emulation) within an organization, to enhance the organization's operation, efficiency, and development by providing all organizational resources to each employee's desktop with minimal cost and time. Intranets connect the different types of computers on a network, thus providing for open standards which allows flexibility.

Keyboard

The main input device for computers. Keyboards are derived from the typewriter but have additional keys that enhance their function.

Keyword Searching

A keyword is a predefined word or set of words that identifies a specific record or document. A keyword search uses these keywords to locate information in a database or on the Internet.

LAN (Local Area Network)
Programs, storage and graphic devices at multiple computer workstations over relatively small geographic areas for rapid communication. Compare WAN.

Menu
A list of commands or options from which choices are made. Most applications now have a menu-driven component.

Merge
In word processing, when information from a table or database is inserted into a document. In a spreadsheet, the combining of more than one cell to create a single cell.

Monitor
A screen used to display the data received from a processor, or data transmitted to the processor. A computer monitor does not have facilities to receive broadcast signals or process sound. A video monitor can receive broadcast signals and process sound.

Mouse
A pointing device for moving the cursor on the screen.

Netiquette
The rules of etiquette on the Internet.

Network
A collection of computers that are linked together for the purpose of sharing information.

OCR (Optical Character Recognition)
OCR involves reading text from paper and translating the images into a form that the computer can manipulate (for example, into ASCII codes). An OCR system enables the scanning of a book or a magazine article, feeding it directly into an electronic computer file, and then editing the file using a word processor.

Online
A common term used to refer to being connected to the Internet.

Output Device
A peripheral through which information from the computer is communicated to the outside world; for example, a display screen, printer or speakers.

Password
A code word of letters and/or numbers that allows a user to gain access to a secured system or piece of information. Compare to PIN.

Paste

A command that inserts text or graphics from the clipboard to the document at the location of the cursor. Requires that an item first be placed on the clipboard using Copy or Cut commands.

Peripheral

A device that can communicate directly with a computer, such as printers, scanners, cameras, CD-ROMs and laserdisc players.

PDA (Personal Digital Assistant)

A pocket-sized personal computer. PDAs usually can store phone numbers, appointments, and to-do lists. Some PDAs have a small keyboard, others have only a special pen that is used for input and output. A PDA can also have a wireless fax modem. Files can be created on a PDA which are later entered into a larger computer.

PIN (Personal Identification Number)

A privileged code that allows a user to gain access to a secured system or piece of information. May be assigned by the system operator or selected by the user. Compare Password.

Point and Click

A method of interacting with a computer using the mouse. The user moves a cursor on the screen based on the corresponding movement of the mouse. When the mouse is over the desired graphic or text on the computer screen, the mouse button is pressed or "clicked" to start a desired action.

Port

An interface on a computer used to connect a device. Personal computers have various types of ports. Internally, there are several ports for connecting disk drives, display screens and keyboards. Externally, personal computers have ports for connecting modems, printers, mice and other peripheral devices.

Preference

The selecting of one thing over another. In computer terms, it is a section of the operating system or software application that can be set as a "default."

Presentation Device

One of several devices that can be connected to a computer to display information to an audience. The most common devices are video projection units and video converters for television monitors.

Probe/Probeware

Probe: A variety of devices that can be connected to a computer or graphing calculator to collect data.

Probeware: The software that allows the probe or probes to interface with the computer or calculator.

RAM (Random Access Memory)

Memory used to run the operating system and applications in a computer. The more RAM a computer has, the more applications it can run simultaneously. The operating system and other software are *stored* on the computer's hard disk, but they *run* in RAM. Data stored in RAM is lost when the computer is turned off.

Remote Control

A wireless device used to control a piece of electronic equipment such as a television, tape or CD player, stereo or video camera.

ROM (Read Only Memory)

System memory not available to user, but used by the operating system. This memory is programmed only once by the manufacturer and cannot be changed.

Scanner

A device for converting text or graphics displayed on a sheet of paper into a digital image you can display on your computer screen and use with certain applications.

Scientific Probe/Science Probe

See probe/probeware

Search Engines

A program that searches documents for specified keywords and returns a list of the documents where the keywords were found. Although *search engine* is really a general class of programs, the term is often used to specifically describe systems like Alta Vista and Excite that enable users to search for documents on the World Wide Web and USENET newsgroups. Typically, a search engine works by sending out a spider to fetch as many documents as possible. Another program, called an indexer, reads these documents and creates an index based on the words contained in each document. Each search engine uses a proprietary algorithm to create its indices such that, ideally, only meaningful results are returned for each query.

Serial

One-by-one. Serial data transfer refers to transmitting data one bit at a time. The opposite of serial is parallel, in which several bits are transmitted concurrently.

Server

A computer that provides shared, centralized resources (such as files, e-mail, databases, modems and printers) to other computers on the network.

Simulation
An electronic imitation. SimCity is a game in which a simulation of a real city is created on a computer.

Software
The instructions that tell a computer what to do.

Sort
To place, separate or arrange according to common characteristics.

Spam
Unsolicited, unwanted junk e-mail with wide distribution.

Spell Check
A feature built into many applications that allows the user to check for spelling errors or look for synonyms.

Spreadsheet
Spreadsheets applications (sometimes referred to simply as spreadsheets) are computer programs that let you create and manipulate spreadsheets electronically. In a spreadsheet application, each value sits in a cell. Data can be defined in each cell and how different cells depend on one another. The relationships between cells are called formulas, and the names of the cells are called labels.

Streaming (Web Streaming)
Playing audio or video immediately as it is downloaded from the Internet, rather than storing it in a file on the receiving computer first. Streaming is accomplished by way of Web browser plug-ins, which decompress and play the file in real time; a fast computer and fast connection are necessary.

TCP-IP (Transmission Control Protocol/Internet Protocol)
The suite of communications "rules" used to connect hosts on the Internet.

Text
The letters or words of a written work.

Text Support Software
Materials available from a textbook publisher that support, supplement or replace print content for students. These may be on-line, in disk or CD-ROM format.

Text Wrap
A feature supported by many word processors that enables you to surround a picture or diagram with text. The text wraps around the graphic. Text wrap is also called text flow.

Undo

A command within many applications that reverses the most recent thing you did in the application.

URL (Uniform Resource Locator)

The global address of documents and other resources on the World Wide Web. The first part of the address indicates what protocol to use, and the second part specifies the IP address or the domain name where the resource is located.

USB (Universal Serial Bus)

A personal computer bus which can support up to 127 peripheral devices in a daisy chain configuration, and has a total bandwidth of 1.5 megabytes per second. It uses inexpensive cable, which can be up to 5 meters long.

VCR

An analog video tape player and recorder which is usually connected to a television monitor to record or play tapes. One-half inch (1/2") video tape is the most commonly used format

Video

A visual recording of information.

Videoconferencing

Conducting a conference between two or more participants at different sites by using computer networks to transmit audio and video data. For example, a *point-to-point* (two person) videoconferencing system works much like a video telephone. Each participant has a video camera, microphone and speakers mounted on his/her computer. As the two participants speak to one another, their voices are carried over the network and delivered to the other's speakers and whatever images appear in front of the video camera appear in a window on the other participant's monitor. *Multipoint* videoconferencing allows three or more participants to sit in a virtual conference room and communicate as if they were sitting right next to each other.

Visualization

A variety of software packages that allows students to create a model of a real world system. These models are often three-dimensional in nature.

Virus

A program that infects and replicates itself in computer files, spreading from computer to computer. Some viruses can be relatively harmless, simply displaying a message on the screen. Other viruses can be extremely damaging, crashing the hard drive so all data is lost.

WAN (Wide Area Network)

A network that spans geographically separated areas, usually by using models and dedicated, high-speed telephone lines. Compare LAN.

Web Page

One page of a document on the World Wide Web. A Web page is usually a file written in Hypertext Markup Language (HTML), stored on a server. A Web page usually has links to other Web pages. Each Web page has its own address called a Uniform Resource Locator (URL) in the form: http://www.name.com/directory/page.htm.

Web Site

A site (location) on the World Wide Web. Each Web site contains a home page, which is the first document users see when they enter the site. The site might also contain additional documents and files. Each site is owned and managed by an individual, company or organization.

Wizard

A Microsoft term for pre-designed elements of a software package. Will "ask questions" and assist in the design of a document. For example, a "letter wizard," within a word processing application, would lead the user through the steps of producing different types of correspondence. (May also refer to an outstanding programmer or a system administrator.) Compare to Assistant in Macintosh.

Word Processor

Software that allows you to enter, edit and format text. Some software will allow the use of graphics.

Web or WWW (World Wide Web)

A global hypertext network that is part of the Internet. It is normally viewed through a browser that provides a Graphical User Interface.

Note: Many of these definitions were found at http://webopedia.internet.com

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